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PROGNOSTIC VALUE OF THE INDEX OF MICROCIRCULATORY RESISTANCE AFTER PRIMARY PERCUTANEOUS CORONARY INTERVENTION

i2 Poster Contributions
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Session Title: Acute Myocardial Infarction
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Background: The Index of Microcirculatory Resistance (IMR) is an invasive, wire-based method for assessing microvascular function which can predict persistent left ventricular dysfunction after primary percutaneous coronary intervention (PCI) in patients with ST-elevation myocardial infarction. The aim of this prospective multicenter study is to evaluate the ability of IMR to predict events in patients undergoing primary PCI.

Methods: IMR was measured immediately after primary PCI in 253 patients from 3 institutions using a pressure-temperature sensor wire. The primary end point was rate of death or rehospitalization for heart failure.

Results: The mean IMR was 40.2 ± 32.4. Patients with IMR ≥40.2 had higher 1 year primary end point rates compared to patients with IMR <40.2 (17.1% vs. 6.6%, P = 0.027). During a median follow-up period of 2.8 years, 34 patients (13.4%) suffered the primary end point and 11 patients (4.3%) died. Using Cox proportional hazards analysis, IMR ≥40.2 was associated with an increased risk of death or rehospitalization for heart failure (hazard ratio [HR] 2.08, P = 0.033) and death (HR 3.90, P = 0.03). Survival curves are shown below. In multivariate analysis, independent predictors of the primary end point include IMR ≥40.2 (HR 2.50, P = 0.011), age (HR 1.04, P = 0.02) and diabetes (HR 4.24, P <0.001).

Conclusions: An elevated IMR at the time of primary PCI predicts poor long term outcomes. Measurement of IMR may identify high risk patients who will benefit from novel therapy.